MicroVAX Diagnostic Monitor Hard Disk User's Guide

Order Number AA–FK75A–MN

This is a new manual that describes how to install and boot the RA/RD Service Kit and Customer Kit for the MicroVAX Diagnostic Monitor.

This manual supersedes the MicroVAX Diagnostic Monitor RA/RD Maintenance Kit Release Notes, Order Number AA–FK53B–MN, and the MicroVAX Diagnostic Monitor RA/RD Customer Kit Release Notes, Order Number AA–FK50B–MN.

Operating System and Version:	VMS Version 4.4 and later
Software Version:	MicroVAX Diagnostic Monitor, Version 3.0 and later

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Preface

The MicroVAX Diagnostic Monitor (MDM) is a software environment that tests and diagnoses MicroVAX processors and their peripherals. This manual describes how to install the software that runs MicroVAX diagnostics under the MDM system from an RA/RD/RF disk drive. Throughout the guide, the term "hard disk" refers to RA/RD/RF disk drives.

Intended Audience

This manual is intended for those who install the MDM Hard Disk Kit. This manual assumes that the installer is familiar with the operation of VMS.

Structure of This Manual

This manual contains three chapters organized as follows:

- Chapter 1 describes requirements for installing the RA/RD Software Kit on a VAX or MicroVAX system.
- Chapter 2 describes the steps needed to begin installation.
- Chapter 3 describes the procedures for installing the kit, verifying successful installation, booting the kit, and removing kit files.

Conventions

This book uses the following conventions:

KEY	Indicates a key on the keyboard. For example, RETURN is a key.
Press	Indicates making one keystroke with the specified key.
Type	Indicates entering characters from the keyboard. For example, to type EXIT, enter four keystrokes: one for each letter.
CTRL/key	Indicates control keys. For example, Control C is shown as CTRL/C. Enter CTRL/C by holding down CTRL and pressing C.
Bold print after prompt	Indicates user input.

UPPERCASE characters	Indicate input typed exactly as shown.
lowercase characters	Indicate input replaced with an appropriate word or phrase. For example, in the following interactive command, type SELECT as shown, but replace device_name with the actual name of a device: MDM>> **SELECT device_name**

Associated Documents

For additional information, refer to the following documents:

- *DECnet-VAX System Manager's Guide*
- *Guide to VAX/VMS Software Installation*
- *MicroVAX Diagnostic Monitor Reference Card*
- *MicroVAX Diagnostic Monitor User's Guide*
- *VAX/VMS Authorize Utility Reference Manual*

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Title	Date

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Chapter 1
Installation Requirements

This chapter describes how to install the MDM Hard Disk Kit on a VMS or MicroVAX system.

1.1 System Manager and Licensing Requirements

Installation of this product requires system management intervention and permission. The customer's system manager and installer must complete the *DIAGNOSTIC SOFTWARE INSTALLATION ACKNOWLEDGEMENT* before installation can proceed.

If this product is installed by field service and kept on the customer's disk, the signed *DIAGNOSTIC SOFTWARE INSTALLATION ACKNOWLEDGEMENT* must be kept on file at the local field service office.

Before installing the MDM Hard Disk Kit, ensure that MDM, system, and account requirements have been met. The following sections describe these requirements.

1.2 MDM Requirements

The MDM Hard Disk Kit installs to the directory [SYS0.SYSEXE] on the target disk. The system manager must perform the following steps:

- Create the directory.
- Limit the directory to 500 files to ensure that MDM works properly.
- Set the target disk unit number in the range of 0 to 7 and attach the disk to the A port.

1.3 Account Privileges and Quotas

MDM installation must be done from the system manager's account or an account that has the privilege SYSPRV or SETPRV.

To determine account privileges, enter the following command:

```
$ SHOW PROCESS/PRIVILEGE
```

Account privileges are shown under the heading Process privileges in a display similar to the following:

```
Process privileges:
SETPRV                  may set any privilege bit
TMPMBX                  may create temporary mailbox
NETMBX                  may create network device
SYSPRV                  may access objects via system protection
```

1.4 System Requirements

Install the MDM Hard Disk Kit on any MicroVAX computer that runs under the VMS operating system.

The MDM installation procedure requires 6500 free blocks in the SYS$UPDATE directory of the host system. This space becomes free again after installation. An additional 6500 blocks are necessary on the target disk where MDM resides during the diagnostics. Choose as the target disk any disk that meets the requirements of the configuration.

To display the number of free blocks available, complete the following steps:

1. Log into the system manager's account as follows:

   ```
   USERNAME: SYSTEM
   PASSWORD: password
   ```

   where password is the SYSTEM account password.

2. Enter the following command to show information about the target disk:

   ```
   $ SHOW DEVICE target_disk_name:
   ```

   where *target_disk_name* is the logical name of the target disk. For example, if the target disk is DUA1, the command is:

   ```
   $ SHOW DEVICE DUA1:
   ```

   The number of free blocks is shown after the heading Free blocks; a typical display follows:

   ```
   Device      Device     Error   Volume   Free     Trans   Mnt
    Name       Status     Count   Label    Blocks   Count   Cnt
    DUB1:      Mounted      0     USER5    24531      5      3
   ```

The Device Status must read "mounted" or "online"; any other reading indicates a problem with the drive. If the status reads "mounted," no further action is necessary to meet system requirements; if the status reads "online," enter the following command to mount the drive:

```
$ MOUNT/SYSTEM target_disk_name:
```

Chapter 2
Preliminary Steps

This chapter describes the steps needed to install the service kit. Before starting the installation, have the system manager perform the following steps to ensure that the software is installed correctly:

1. Back up the target disk.
2. Stop interactive and batch processes.
3. Stop network activity.
4. Change system limits.

Detailed explanations for each step follow.

2.1 Back Up the Target Disk

After logging into an account with system privileges, complete the following steps:

1. Mount the backup media by using the following command:

   ```
   $ MOUNT/FOREIGN backup_media:
   ```

2. Back up the target disk by using the following command:

   ```
   $ BACKUP/IMAGE target_disk_name: backup_media:
   ```

For example, if the target disk is DUA0: and the backup device is the magnetic tape MTA0:, give the command:

```
$ BACKUP/IMAGE DUA0: MTA0:
```

Backing up the disk may take 1 hour.

2.2 Stop Interactive and Batch Processes

Ensure that all users are logged out and that all batch jobs are complete. Although users with OPER privileges can log in, prevent all other users from gaining access to the system by typing the following command:

```
$ SET LOGINS/INTERACTIVE=0
```

To reset the interactive logins to a previous setting, enter the following command:

```
$ SET LOGINS/INTERACTIVE=number_of_logins
```

2.3 Stop Network Activity

Enter the following commands to ensure that DECnet is inoperative:

```
$ RUN SYS$SYSTEM:NCP
NCP> SET EXECUTOR STATE OFF
NCP> EXIT
$
```

After the installation is complete, enter the following commands to turn the network on again:

```
$ RUN SYS$SYSTEM:NCP
NCP>  SET EXECUTOR STATE ON
NCP>  EXIT
$
```

CAUTION: *Complete or stop network-dependent operations before making DECnet inoperable. Mail and file transfers are affected by shutting down the network.*

2.4 Change System Limits

Change system limits only when necessary. Within the SYSTEM account, use AUTHORIZE, the User Authorization File (UAF) utility, to check the limits by entering the following commands:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> SHOW SYSTEM
```

Ensure that the limits are equal to or greater than the values specified as follows:

```
Paging file size (PGFLQUOTA) = 4000
Working set size (WSQUOTA) = 250
Open file quota (FILLM) = 20
AST limit (ASTLM) = 20
```

If necessary, modify these values by using the MODIFY command as follows:

```
UAF> MODIFY SYSTEM /limit=new_value
```

For example, to increase the working set size limit to 300, enter the following command:

```
UAF> MODIFY SYSTEM/WSQUOTA=300
```

To exit the UAF utility, enter:

```
UAF> EXIT
$
```

Log out and then log in to affect system modifications. For more information about the UAF utility, refer to the *VAX/VMS Authorize Utility Reference Manual*.

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Chapter 3
Installation Procedure

This chapter describes the installation procedure for the service kit. Sections 3.3 and 3.4 explain the booting and cleanup procedures.

3.1 Install the Kit

This installation procedure requires 10 minutes. Perform the following steps to install the MDM Hard Disk Kit:

1. Log into the system manager's account:

   ```
   USERNAME:SYSTEM
   PASSWORD:password
   ```

2. Run the VMS installation procedure, VMSINSTAL, by entering the following command:

   ```
   $ @SYS$UPDATE:VMSINSTAL
   ```

   The procedure responds with the following messages:

   ```
   VAX/VMS Software Product Installation Procedure V4.4

   It is dd-mmm-yyyy at hh:mm.
   Enter a question mark (?) at any time for help.

   Are you satisfied with the backup of your system disk [YES]?
   ```

3. Enter a Y or press RETURN to continue the installation. Enter N to return to the steps in the preliminary procedure.

4. When the system requests it, enter the name of the device on which the software distribution volume is mounted. For example, if the distribution device is a TK50/70 magnetic tape MUA0:, the dialogue is:

   ```
   Where will the distribution volumes be mounted: MUA0:
   ```

5. When the system requests the name of the products to be installed, enter the name of the kit:

   ```
   *  Products: MDM_RA
   ```

Ensure that the software is the current version: compare the MDM version number given in the Release Notes with the version number printed on the software label.

6. Physically mount the distribution volume containing the kit, and enter Y for yes when the system prompts as follows:

```
Please mount the first volume of the set on MUA0:

* Are you Ready? Y
```

NOTE: *To stop the installation procedure, press* CTRL/Y . *Not all files created by the procedure are deleted when the procedure stops. Check the SYS$UPDATE directory for MDM_RA.DIR; to save disk space, delete MDM_RA.DIR and its contents.*

The following messages result:

```
MOUNT-I-MOUNTED, MDM_RA mounted on MUA0:
The following products will be processed:

MDM V0.A

Beginning installation of MDM V0.A at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A...

* Specify Device for MDM kit directory [DUA0:]:
```

7. Enter the name of the target disk that will hold the MDM kit directory. VMSINSTAL specifies the default as the system disk. For example, if the system disk is DUA0: and you want to install the MDM Hard Disk Kit on target disk DUA1:, the dialogue is:

```
* Specify Device for MDM kit directory [DUA0:] DUA1:
```

All files from the earlier installation are purged, and the following message appears:

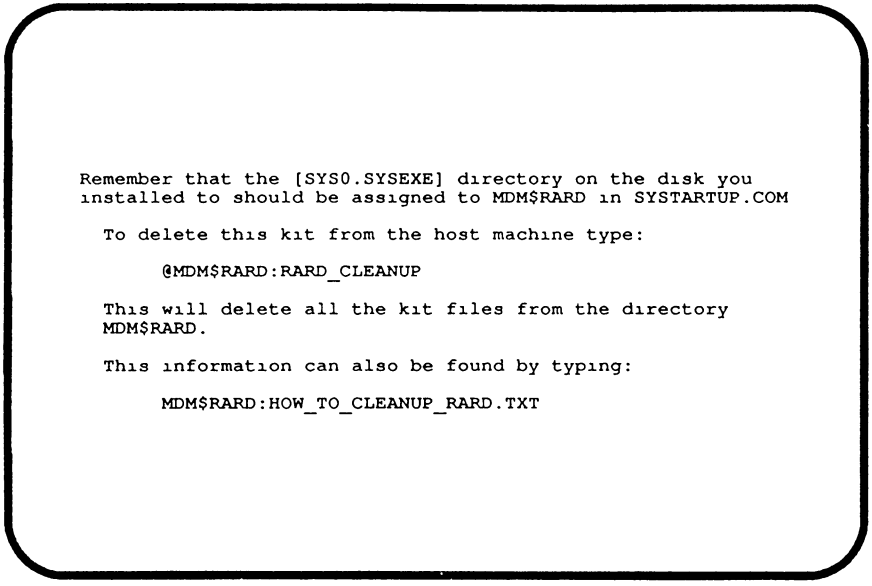
```
%DCL-I-SUPERSEDE, previous value of MDM$RARD has been
superseded
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their
target directories...
```

The following messages appear if the system directory already exists:

```
% VMS INSTAL-I-SYSDISK
This product creates system disk directory SYSDISK logical
[SYS0.SYSEXE]
CREATE-I-EXISTS
Director from previous message already exits.
```

Check that the following VMSINSTAL progress messages appear as the installation procedure runs to completion.

gure 3–1: VMSINSTAL Progress Messages


Remember that the [SYS0.SYSEXE] directory on the disk you
installed to should be assigned to MDM$RARD in SYSTARTUP.COM
To delete this kit from the host machine type:
@MDM$RARD:RARD_CLEANUP
This will delete all the kit files from the directory
MDM$RARD.
This information can also be found by typing:
MDM$RARD:HOW_TO_CLEANUP_RARD.TXT

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. Exit from the installation procedure. When VMSINSTAL requests the names of additional software products, type EXIT in response to the following prompt:

```
Enter the products to be  processed from the next distribution
volume set.

* Products: EXIT
```

VMSINSTAL displays this final message:

```
* VMSINSTAL procedure done at hh:mm
$
```

3.2 Installation Verification

This section describes how to verify that the installation was successful. Verify its success by completing the following steps:

1. Check that the VMS logical name exists by entering the following command:

   ```
   $ SHOW LOGICAL MDM$RARD
   ```

   The following name assignment appears:

   ```
   "MDM$RARD" = "target_disk_name:[SYS0.SYSEXE]" (LNM$SYSTEM_TABLE)
   ```

2. Check that the proper MDM directories have been installed by entering the following command:

   ```
   $ DIRECTORY MDM$RARD
   ```

   If the installation has been successful, the system displays the following directory of MDM files:

```
Directory target_disk_name:[SYS0.SYSEXE]

CNF.EXE;5       FE.EXE;2        HOW_TO_CLEANUP_RARD.TXT;1
MDM.SYS;2       MDMDIA.SYS;2    MDM_RELEASE.NOTE;1 NAAAA.EXE;1
NAAAC.EXE;1     NAADA.EXE;1     NAADC.EXE;1        NAAQA.EXE;1
NAAXA.EXE;1     NACQA.EXE;1     NADFA.EXE;1        NADHA.EXE;1
NADLA.EXE;1     NADMA.EXE;1     NADPA.EXE;1        NADQA.EXE;1
NADRA.EXE;1     NADRB.EXE;1     NADSA.EXE;1        NADSI.EXE;1
NADTA.EXE;1     NADXA.EXE;1     NADZA.EXE;1        NAGSA.EXE;1
NAGSB.EXE;1     NAIAA.EXE;1     NAIAB.EXE;1        NAIBA.EXE;1
NAIDA.EXE;1     NAIDB.EXE;1     NAIDC.EXE;1        NAIDD.EXE;1
NAIEA.EXE;1     NAIGA.EXE;1     NAKAA.EXE;1        NAKDA.EXE;1
NAKFA.EXE;1     NAKMA.EXE;1     NAKMB.EXE;1        NAKWA.EXE;1
NAKWB.EXE;1     NAKXA.EXE;1     NALAA.EXE;1        NALAN.EXE;1
NALNA.EXE;1     NALPA.EXE;1     NAMIA.EXE;1        NAMSA.EXE;1
NAMTA.EXE;1     NAQBA.EXE;1     NAQCA.EXE;1        NARQA.EXE;1
NARRA.EXE;1     NARVA.EXE;1     NARXA.EXE;1        NARXB.EXE;1
NATKA.EXE;1     NATSA.EXE;1     NATUA.EXE;1        NAVCA.EXE;1
NAVCB.EXE;1     NAVSA.EXE;1     NAVVA.EXE;1        NAXQA.EXE;1
NAXQB.EXE;1     NAZQA.EXE;1     RARD_CLEANUP.COM;1

Total of 74 files.
```

NOTE: *This is a minimum list of files: there may be additional files in an existing directory.*

3.3 Booting Procedure

The booting procedure for the kit involves shutting down the system. Only the system manager should perform the shutdown since it logs out all users from the system.

Perform the following steps to shut down the system and boot the kit:

1. Log into the system manager's account:

```
USERNAME: SYSTEM
PASSWORD : password
```

2. Run the VMS shutdown procedure, SHUTDOWN, by entering the following command:

```
$ @SYS$SYSTEM:SHUTDOWN
```

The procedure responds with the following messages:

```
      SHUTDOWN -- Perform an Orderly System Shutdown

How many minutes until final shutdown [0]:
Reason for shutdown [Standalone]:
Do you want to spin down the disk volumes [NO]?
Do you want to invoke the site-specific shutdown procedure?
Should an automatic system reboot be performed [NO]?
When will the system be rebooted [later]:
Shutdown options (enter as a comma-separated list):
 REBOOT_CHECK        Check existence of basic system files
  .
  .   (other options may exist depending on your system setup)
  .
Shutdown options [NONE]:
```

Several shutdown messages will be displayed ending with:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

NOTE: *Check with the system manager to see if the default answers in the SHUTDOWN procedure are sufficient for the system.*

3. Press BREAK to get to the console prompt.

4. For an RA/RD disk or an RF disk attached to a KFQSA controller, enter the following boot request:

```
>>>boot/100 DUAn
```

where n is the unit number of the disk containing the MDM Hard Disk Kit.

The system then prompts for the bootfile. Enter the name of the image:

```
  2..
Bootfile: [SYS0.SYSEXE]MDM.SYS
```

For an RF disk attached to DSSI controllers, enter the following boot request:

```
>>>boot/100 DIAn
```

where n is the unit number of the disk containing the MDM Hard Disk Kit.

The system then prompts for the bootfile. Enter the name of the image:

```
  2..
Bootfile: [SYS0.SYSEXE]MDMDIA.SYS
```

5. At the prompt, press RETURN to continue booting.

Refer to the *MicroVAX Diagnostic Monitor User's Guide* for instructions on running MDM.

3.4 Cleanup Procedure

After running MDM, perform the following steps to remove the MDM Hard Disk Kit files from the target disk:

1. Check that the MDM$RARD logical name has been defined as explained in Section 3.2. If it is undefined, have the system manager enter the following command:

   ```
   $ DEFINE/SYSTEM MDM$RARD target_disk_name:[SYS0.SYSEXE]
   ```

2. Run the cleanup procedure by entering:

   ```
   $ @MDM$RARD:RARD_CLEANUP
   ```

   This command deletes all files associated with the MDM Hard Disk Kit from the directory MDM$RARD. Remove protection from the files; get the system manager's assistance when needed.

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